

Chapter 5: Section 4(f) Evaluation

This chapter evaluates the potential use of Section 4(f) properties by the S.R. 108 action alternatives. Section 4(f) requirements are stated in 23 CFR 774. There are no Section 6(f) properties in the S.R. 108 study area.

5.1 Proposed Action

The proposed action would improve S.R. 108 to meet current design standards and to maintain local and regional mobility. The purpose of the proposed action is to provide a solution to meet the long-term transportation needs along S.R. 108 through the year 2035. The proposed action would also reduce overall congestion and provide a transportation facility that is compatible with local and regional land use and transportation plans and city growth. The action would include widening S.R. 108 between Antelope Drive (S.R. 127) in Syracuse and 1900 West (S.R. 126) in West Haven.

5.1.1 Purpose of the Project

There are several roadway deficiencies on S.R. 108. In addition, traffic congestion levels are increasing on the roadway due to the growth of the cities along S.R. 108. The roadway needs to be improved to meet current design and safety standards and to maintain local and regional mobility. The purpose of the alternatives developed and evaluated in this EIS is to provide a solution to meet the long-term transportation needs in the project study area through the year 2035. Specifically, these goals are:

- Reduce roadway congestion on S.R. 108.
- Eliminate the roadway deficiencies associated with a lack of shoulders and turn lanes in order to reduce accident rates on S.R. 108.
- Enhance the opportunities for multi-modal use of S.R. 108 by providing improved bicycle, pedestrian, and transit facilities consistent with local and regional land use and transportation plans.



5.1.2 Project Alternatives

This EIS evaluates three alternatives in detail: the No-Action, Minimize 4(f) Impacts, and West Alternatives.

5.1.2.1 No-Action Alternative

NEPA requires an analysis of the No-Action Alternative. This alternative serves as a baseline so that decision-makers can compare the environmental effects of the action alternatives.

If the No-Action Alternative is selected, no improvements to S.R. 108 or adjacent transportation facilities would be made other than those improvements already identified in the WFRC Regional Transportation Plan to enhance mobility in the area. These activities, which might have some environmental impacts, would be evaluated in a separate document.

If no action is taken on S.R. 108, UDOT and the cities would likely continue to make minor maintenance improvements such as rehabilitating pavement and improving shoulders, turn lanes, sidewalks, and curb and gutter. The cities might require developers to provide some of these improvements as part of any new development along S.R. 108. Overall, the basic two-lane configuration of S.R. 108 would not change under the No-Action Alternative.

5.1.2.2 Minimize 4(f) Impacts Alternative

The Minimize 4(f) Impacts Alternative involves widening S.R. 108 to a 110-foot, five-lane cross-section. In order to minimize the use of 4(f) properties, the alignment varies between the center alignment, west alignment, and east alignment (see Exhibit 2.1-8, Preliminary Five-Lane Alternatives for Level 2 Screening).

Construction phasing and maintenance of traffic would be more complex with this alternative due to the transitions and because the alignment shifts from one side of the road to the other. However, the Minimize 4(f) Impacts Alternative would allow more flexibility to refine the alignment in the future to miss important utilities.

For the Minimize 4(f) Impacts Alternative, two typical cross-sections were developed: a section with a center two-way left-turn lane and a section with a center raised median. The following elements would be included in both the center turn lane and center raised median typical cross-sections:

- Five-lane (110-foot) cross-section consisting of four 12-foot travel lanes, a 14-foot median (either a two-way left-turn lane or a raised center median), 8-foot shoulders, 4-foot bicycle lanes, 2.5-foot curb and gutter, 4.5-foot park strips, 4-foot sidewalks, and 1 foot between the back of the sidewalk and the edge of the right-of-way.
- Although the exact location of raised medians would be determined during the final design of the project, raised medians would be considered in high traffic areas such as commercial districts to improve safety. Proposed medians to improve school safety would be at 1700 South mid-block for Syracuse Elementary and Syracuse Junior High, at 700 South in Syracuse adjacent to the new Syracuse High School, and at 550 North in West Point. A further evaluation showed that the use of dual left-turn lanes without raised medians would improve the level of service to LOS D or better in all segments of S.R. 108 (see Exhibit 2.1-4: Corridor Segments).
- Improve most intersections with dedicated right-turn and left-turn lanes. Dual left-turn lanes would be provided at 1700 South (southbound only), 1800 North, 5600 South, and 4800 South.
- Include enough shoulder width to accommodate bus service.
- Support bicycle use along S.R. 108 by providing Class II bicycle lanes.

Where can I find more information about the roadway design evaluated in this EIS?

See Appendix A, Roadway Plans, for more information about the design evaluated in this EIS for the Minimize 4(f) Impacts Alternative.

What is a Class II bicycle lane?

A Class II bicycle lane is a striped and signed lane on each side of the road for one-way bicycle travel.



5.1.2.3 West Alternative

The West Alternative also involves widening S.R. 108 to a 110-foot, five-lane cross-section. The centerline of this alignment is located such that the proposed right-of-way line along the east side of S.R. 108 matches the existing right-of-way line along the east side of S.R. 108. Due to this design, the alignment misses all properties on the east side of S.R. 108.

The West Alternative would better facilitate construction phasing because the new roadway could be built while existing lanes of traffic are kept open during the initial phase of construction.

Additionally, the West Alternative would eliminate existing accesses along the west side of S.R. 108, which would help reduce congestion and improve safety by reducing the number of vehicles making right and left turns onto and off of the roadway.

The typical sections for the West Alternative would be the same as those described for the Minimize 4(f) Impacts Alternative.

Where can I find more information about the roadway design evaluated in this EIS?

See Appendix A, Roadway Design, for more information about the design evaluated in this EIS for the West Alternative.

5.2 Section 4(f) Properties

For the proposed S.R. 108 project, a review of potential Section 4(f) properties was conducted. Based on this review, the only potential 4(f) properties were architectural properties; none were recreational or archaeological resources. The FHWA Section 4(f) regulation (23 CFR 774.3) states that:

The [FHWA] may not approve the use of Section 4(f) property unless (a) the Administration determines that: (1) there is no feasible and prudent avoidance alternative to the use of the land, and (2) the action includes all possible planning to minimize harm to the property resulting from such use; or (b) the [FHWA] determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact on the property.

5.2.1 Recreation Sites

For the S.R. 108 project, an inventory of recreation resources along S.R. 108 was completed. As shown in Exhibit 3.3-1, Parks in the Social Impact Analysis Area, there are eight recreation resources in the impact analysis area. Two of these resources, Centennial Park and Founders Park, are directly accessed from S.R. 108. Both action alternatives were designed to avoid impacts to these resources. Construction would not require right-of-way acquisition from either of the two parks. The remaining six recreation resources within one-half mile of S.R. 108 do not front or require access from the roadway, and neither action alternative would have direct or indirect adverse effects on any recreation resources.

5.2.2 Architectural Properties

The FHWA Section 4(f) regulation (23 CFR 774.11) also states that:

In determining the applicability of Section 4(f) to historic sites, the [FHWA], in cooperation with the applicant, will consult with the official(s) with jurisdiction to identify all properties on or eligible for the National Register of Historic Places. The Section 4(f) requirements apply to historic sites on or eligible for the [NRHP], unless the [FHWA] determines that an exception under 23 CFR 774.13 applies.

Section 4(f) applies to all architectural properties that are eligible for the NRHP (see Section 3.14, Historic, Archaeological, and Paleontological Resources, for more information).

Of the 109 in-period architectural properties, 61 are considered eligible for the NRHP under at least Criterion C for their architectural attributes. The Utah SHPO has agreed with the NRHP eligibility determination for properties as presented in the Determination of Eligibility and Finding of Effect (DOE/FOE). The locations of these 61 NRHP-eligible architectural properties in the study area are listed in Exhibit 5.2-1 below. A definition of *de minimis* findings is provided in Section 5.3.1, *De Minimis* Determination.

What is the National Register of Historic Places?

The *National Register of Historic Places*, or NRHP, is a listing of archaeological sites, buildings, and structures throughout the United States that have undergone thorough documentation and rigorous evaluation and have been determined to be important in local, national, or international prehistory or history.



Exhibit 5.2-1: NRHP-Eligible Architectural Properties and 4(f) Use

Address ^a	Construction Date (approx.)	Description	City	NRHP Eligibility	Effect Determination under Section 106		4(f) Use ^b	
					Minimize 4(f) Impacts Alternative	West Alternative	Minimize 4(f) Impacts Alternative	West Alternative
1663 South 2000 West	1926	1-part commercial block exhibiting early and late 20th-century style	Syracuse	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
1609 South 2000 West	1929	Bungalow style, Foursquare	Syracuse	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
1451 South 2000 West	1903	1-part Block Vernacular service station	Syracuse	Eligible	No Adverse Effect ^c	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
1419 South 2000 West	1940	Vernacular Minimal Traditional	Syracuse	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
1401 South 2000 West	1930	Undefined type and vernacular style with some Minimal Traditional elements	Syracuse	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
1373 South 2000 West	1955	Ranch/Rambler	Syracuse	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
1317 South 2000 West	1923	Bungalow	Syracuse	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
1217 South 2000 West	1920	Foursquare, mixed Bungalow and general Victorian style	Syracuse	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
1189 South 2000 West	1958	General Ranch/Rambler and Contemporary style	Syracuse	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
1147 South 2000 West	1959	Ranch/Rambler	Syracuse	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
1133 South 2000 West	1930	Period Cottage or Greek Revival and general Period Revival style	Syracuse	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
963 South 2000 West	1920	Bungalow	Syracuse	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)
850 South 2000 West	1924	Warehouse, early 20th-century style	Syracuse	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
723 South 2000 West	1910	Cross-wing (T-cottage), Victorian style	Syracuse	Eligible	Adverse Effect	No Adverse Effect	Yes	Yes (de minimis)
150 South 2000 West	1955	WWII-Era Cottage, general Ranch/Rambler style	West Point	Eligible	Adverse Effect	Adverse Effect	Yes	Yes



Address ^a	Construction Date (approx.)	Description	City	NRHP Eligibility	Effect Determination under Section 106		4(f) Use ^b	
					Minimize 4(f) Impacts Alternative	West Alternative	Minimize 4(f) Impacts Alternative	West Alternative
145 South 2000 West	1958	Ranch/Rambler, Post-WWII style	West Point	Eligible	No Effect	No Effect	No	No
58 South 2000 West	1935	Period Cottage, general Period Revival style	West Point	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
39 South 2000 West	1955	Ranch/Rambler	West Point	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
220 North 2000 West	1940	Agricultural outbuilding complex, block-and-wing Monitor-style barn, two lean-to sheds	West Point	Eligible	No Adverse effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
310 North 200 West	1955	Ranch/Rambler, Ranch/Rambler and Contemporary style	West Point	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
647 North 2000 West	1950	WWII-Era Cottage, general Post-WWII style	West Point	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
667 North 2000 West	1950	Ranch/Rambler	West Point	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
796 North 2000 West	1945	WWII-Era Cottage of vernacular style	West Point	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
817 North 2000 West	1950	Ranch/Rambler	Clinton	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
868 North 2000 West	1950	WWII-Era Cottage, general Post-WWII and Ranch/Rambler style	Clinton	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
881 North 2000 West	1955	Early Ranch/Rambler	Clinton	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
1071 North 2000 West	1905	Hall-Parlor or Single-Cell residence, early 20th-century style	Clinton	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
1141 North 2000 West	1955	Early Ranch/Rambler residence	Clinton	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
1197 North 2000 West	1950	Duplex, general Ranch/Rambler style	Clinton	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
1253 North 2000 West	1955	WWII-Era Cottage, general Ranch/Rambler style	Clinton	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
1318 North 2000 West	1925	Period Cottage, English Cottage style	Clinton	Eligible	Adverse Effect	No Effect	Yes	No



Address ^a	Construction Date (approx.)	Description	City	NRHP Eligibility	Effect Determination under Section 106		4(f) Use ^b	
					Minimize 4(f) Impacts Alternative	West Alternative	Minimize 4(f) Impacts Alternative	West Alternative
1693 North 2000 West	1945	Early Ranch/Rambler, Early Ranch style	Clinton	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
1969 North 2000 West	1960	Ranch/Rambler	Clinton	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
1993 North 2000 West	1955	WWII-Era Cottage, Post-WWII style	Clinton	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
2133 North 2000 West	1920	Bungalow, general Bungalow and Arts and Crafts styles	Clinton	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
2162 North 2000 West	1955	Ranch/Rambler	Clinton	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
2184 North 2000 West	1955	WWII-Era Cottage, general Post-WWII style	Clinton	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
2212 North 2000 West	1960	Ranch/Rambler, general Ranch/Rambler and Contemporary style	Clinton	Eligible	No Effect	No Effect	No	No
2282 North 2000 West	1937	Undefined type, general Post-WWII/Contemporary style	Clinton	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
1988 West 2300 North	1935	Period Cottage, Greek Revival style	Clinton	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
2342 North 2000 West	1930	Modified (simplified) Cape Cod vernacular residence	Clinton	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
2404 North 2000 West	1955	Early Ranch/Rambler	Clinton	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
2422 North 2000 West	1960	Ranch/Rambler, general Post-WWII style	Clinton	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
2541 North 2000 West	1945	WWII-Era Cottage, general Post-WWII style	Clinton	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
5986 South 3500 West	1945	WWII-Era Cottage, general Minimal Traditional style	Roy	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
5939 South 3500 West	1955	Ranch/Rambler	Roy	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
5867 South 3500 West	1960	Ranch/Rambler	Roy	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)



Address ^a	Construction Date (approx.)	Description	City	NRHP Eligibility	Effect Determination under Section 106		4(f) Use ^b	
					Minimize 4(f) Impacts Alternative	West Alternative	Minimize 4(f) Impacts Alternative	West Alternative
5844 South 3500 West	1945	WWII-Era Cottage, general Minimal Traditional and Period Revival style	Roy	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
5839 South 3500 West	1955	Undefined type and Contemporary style	Roy	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
5823 South 3500 West	1955	Ranch/Rambler, Ranch/Rambler and Contemporary style	Roy	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
5720 South 3500 West	1955	Contemporary type and style	Roy	Eligible	Adverse Effect	No Adverse Effect	Yes	Yes (<i>de minimis</i>)
4180 Midland Drive	1925	Bungalow	West Haven	Eligible	No Effect	No Adverse Effect	No	Yes (<i>de minimis</i>)
4148 Midland Drive	1925	Bungalow	West Haven	Eligible	No Effect	No Adverse Effect	No	Yes (<i>de minimis</i>)
3982 Midland Drive	1960	Ranch/Rambler (with attached garage)	West Haven	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
3964 Midland Drive	1960	Ranch/Rambler	West Haven	Eligible	No Adverse Effect	No Adverse Effect	Yes (<i>de minimis</i>)	Yes (<i>de minimis</i>)
3801 Midland Drive	1955	Ranch/Rambler	West Haven	Eligible	No Adverse Effect	Adverse Effect	Yes (<i>de minimis</i>)	Yes
3713 Midland Drive	1930	Agricultural outbuildings, shed or possible milking barn	West Haven	Eligible	Adverse Effect	Adverse Effect	Yes	Yes
3594 Midland Drive ^d	1950	WWII-Era Cottage, general Post-WWII style	West Haven	Eligible	NA	NA	NA	NA
3575 Midland Drive ^d	1935	Outbuilding only	West Haven	Eligible	NA	NA	NA	NA
3478 Midland Drive	1960	Ranch/Rambler, general Post-WWII style	West Haven	Eligible	No Effect	No Effect	No	No



Address ^a	Construction Date (approx.)	Description	City	NRHP Eligibility	Effect Determination under Section 106		4(f) Use ^b	
					Minimize 4(f) Impacts Alternative	West Alternative	Minimize 4(f) Impacts Alternative	West Alternative
2008 West 3300 South	1920	Bungalow	West Haven	Eligible	No Adverse Effect	No Adverse Effect	Yes (de minimis)	Yes (de minimis)

^a A "2" in front of an address means the address is estimated.

^b See Section 5.3.1, *De Minimis* Determination, for a definition of *de minimis* findings.

^c A strip take is assessed as No Adverse Effect if no NRHP-eligible historic buildings or contributing features would be affected.

^d This property is within the area of potential effect where S.R. 108 intersects Hinckley Drive. Impacts to this property were evaluated under the UDOT Hinckley Drive Extension project, which will be constructed first. The S.R. 108 project will have no additional impacts to this property.

5.2.3 Archaeological Sites

Only one archaeological site identified along S.R. 108 was determined to be eligible for the NRHP. This is Site 42Wb352, the Denver & Rio Grande Western Railroad, which is located at the intersection of S.R. 108 and S.R. 126. Neither action alternative would affect this site.

5.3 Use of Section 4(f) Properties

This section evaluates the impacts of the S.R. 108 project on Section 4(f) properties by type of use (direct or constructive). There would be no 4(f) use of any recreational or archaeological resources along S.R. 108. Therefore, the analysis below focuses on architectural properties. Section 4(f) “use” is defined and addressed in the FHWA/Federal Transit Administration regulations at 23 CFR 774.17. A “use” occurs when:

1. Land from a 4(f) site is **permanently incorporated** into a transportation facility,
2. There is a **temporary occupancy** of land that is adverse in terms of the statute’s preservation purpose as determined by the criteria in 23 CFR 774.13(d), or
3. There is a **constructive use** of a Section 4(f) property as determined by the criteria 23 CFR 774.15.

Constructive Use. A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project’s proximity impacts are so severe that the protected activities, features, or attributes that qualify a property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished (23 CFR 774.15). The following five criteria are used to evaluate constructive-use impacts:

- **Noise.** The projected noise level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility or a property protected by Section 4(f), such as hearing the performances at an outdoor amphitheater, sleeping in the sleeping area of a campground, enjoying a historic site where a quiet setting is a generally recognized



feature or attribute of the site's significance, enjoying an urban park where serenity and quiet are significant attributes, or viewing wildlife in a wildlife or waterfowl refuge intended for such viewing.

- **Aesthetics.** The proximity of the proposed project substantially impairs aesthetic features or attributes of a property protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the property. Examples of substantial impairment to visual or aesthetic qualities would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historic building or substantially detracts from the setting of a Section 4(f) property that derives its value in substantial part due to its setting.
- **Access.** The project results in a restriction of access which substantially diminishes the utility of a significant publicly owned park, recreation area, or historic site.
- **Vibration.** The vibration impact from construction or operation of the project substantially impairs the use of a Section 4(f) property, such as projected vibration levels that are great enough to physically damage a historic building or substantially diminish the utility of the building, unless the damage is repaired and fully restored consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (that is, the integrity of the contributing features must be returned to a condition that is substantially similar to that which existed prior to the project).
- **Ecological Intrusion.** The ecological intrusion of the project substantially diminishes the value of wildlife habitat in a wildlife and waterfowl refuge adjacent to the project, substantially interferes with the access to a wildlife and waterfowl refuge when such access is necessary for established wildlife migration or critical life cycle processes, or substantially reduces the wildlife use of a wildlife and waterfowl refuge.

A review of the 4(f) resources along S.R. 108 that would not be directly used showed that there would also be no substantial impairment to any resource that would result in a constructive use.

The main concern with the project would be increased noise levels, but noise increases would be between 1 dBA and 2 dBA over the No-Action Alternative. This minor increase in noise levels would not change the character of any historic property or the nature of activities (such as baseball and soccer) in the adjacent parks. Overall, the project would not cause any changes to protected activities, features, or attributes of any 4(f) resource that would not be directly used.

5.3.1 De Minimis Determination

For a *de minimis* impact determination, FHWA must determine that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact on the property. For historic sites, *de minimis* impact means that FHWA has determined, in accordance with 36 CFR 800, that no historic property is affected by the project or that the project will have “no adverse effect” on the historic property in question. Prior to making *de minimis* impact determinations for a historic property, the following coordination must be undertaken:

- The consulting parties identified in accordance with 36 CFR 800 must be consulted.
- FHWA must receive written concurrence from the pertinent State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO), and from the Advisory Council on Historic Preservation if it is participating in the consultation process, in a finding of “no adverse effect” or “no historic properties affected” in accordance with 36 CFR 800. FHWA must inform these officials of its intent to make a *de minimis* impact determination based on their concurrence in the finding of “no adverse effect” or “no historic properties affected.”
- Public notice and comment, beyond that required by 36 CFR 800, is not required.



5.3.2 Use of Architectural Properties

Exhibit 5.3-1 below lists the Section 4(f) use for eligible properties for which, under Section 106, there was an adverse effect. In all but two cases, the adverse use would require a total acquisition of the architectural property for one of two reasons: either the right-of-way would directly impact the historic structure and therefore would require the removal of the structure, or the cut and fill is substantial enough that it would require the removal of the historic structure. In one case, the use of an architectural property due to the Minimize 4(f) Impacts Alternative would be a direct impact to a historic ditch, which is a contributing feature to the property; therefore, the primary structure would not need to be removed. In the other case, the use of an architectural property from the West Alternative would be due to the direct impact and probable removal of a historic retaining wall, which is a contributing feature to the property; therefore, the primary structure would not need to be removed. The remaining properties that would have a 4(f) use would have “no adverse effect” under Section 106, and therefore the impacts were considered *de minimis* as shown in Exhibit 5.4-1: *De Minimis* Impacts on page 5-17.

The *de minimis* finding was developed in consultation with UDOT, FHWA, and the Utah SHPO. On April 12, 2007, the Utah SHPO was consulted with and informed of FHWA’s intent to make a Section 4(f) *de minimis* impact finding based on the Utah SHPO’s written concurrence that the project will not adversely affect the activities, features, and attributes that qualify these eligible historic properties for protection under Section 4(f) (see letter dated April 12, 2007, in Appendix C, Pertinent Correspondence).

Exhibit 5.3-1: Section 4(f) Use for Adversely Affected Architectural Properties

Minimize 4(f) Impacts Alternative		West Alternative	
Total	Addresses	Total	Addresses
14	1663 South 2000 West 1318 North 2000 West 1609 South 2000 West 850 South 2000 West 723 South 2000 West 150 South 2000 West 58 South 2000 West 796 North 2000 West 1197 North 2000 West 1693 North 2000 West 1993 North 2000 West 2133 North 2000 West 5720 South 3500 West 3713 Midland Drive	22	1663 South 2000 West 817 North 2000 West 881 North 2000 West 2541 North 2000 West 1609 South 2000 West 850 South 2000 West 150 South 2000 West 58 South 2000 West 647 North 2000 West 667 North 2000 West 796 North 2000 West 1071 North 2000 West 1141 North 2000 West 1197 North 2000 West 1253 North 2000 West 1693 North 2000 West 1969 North 2000 West 1993 North 2000 West 2133 North 2000 West 5839 South 3500 West 3801 Midland Drive 3713 Midland Drive

5.3.2.1 Minimize 4(f) Impacts Alternative

Exhibit 5.2-1: NRHP-Eligible Architectural Properties and 4(f) Use above provides an overview of the impacts of the Minimize 4(f) Impacts Alternative on the Section 4(f) architectural properties along S.R. 108. Of the 61 architectural properties eligible for the NRHP, there would be a 4(f) use of 54 of these properties under the Minimize 4(f) Impacts Alternative. The Utah SHPO concurs that the Minimize 4(f) Impacts Alternative would have “no adverse effect” on 40 of these 54 historic properties. The 4(f) impacts to these 40 properties are therefore considered *de minimis* as described in Section 5.3.1, *De Minimis* Determination. The impacts are also shown in Exhibit 5.9-2: Eligible 4(f) Architectural Property Use by Alternative – Minimize 4(f) Impacts Alternative on pages 5-48 through 5-80.



5.3.2.2 West Alternative

Exhibit 5.2-1: NRHP-Eligible Architectural Properties and 4(f) Use above provides an overview of the impacts of the West Alternative on the Section 4(f) architectural properties along S.R. 108. Of the 61 architectural properties eligible for the NRHP, there would be a 4(f) use of 55 of these properties under the West Alternative. The Utah SHPO concurs that the West Alternative would have “no adverse effect” on 33 of these 55 properties. The 4(f) impacts to these 33 properties are therefore considered *de minimis* as described in Section 5.3.1, *De Minimis* Determination. The impacts are also shown in Exhibit 5.9-3: Eligible 4(f) Architectural Property Use by Alternative – West Alternative on pages 5-81 through 5-113.

5.4 Description of *De Minimis* Findings

Where multiple Section 4(f) resources are present in the study area and potentially used by a transportation project, *de minimis* impact findings are made for the individual Section 4(f) resources. The impacts to Section 4(f) resources and any impact avoidance, minimization, and mitigation or enhancement measures must be considered on an individual resource basis and *de minimis* impact findings made individually for each Section 4(f) resource. However, when there are multiple resources for which *de minimis* impact findings are appropriate, the procedural requirements of Section 4(f) can and should be completed in a single process so long as it is clear that distinct determinations are being made. Also, in these cases, the written concurrence of the official(s) with jurisdiction may be provided for the project as a whole, as long as the *de minimis* impacts findings have been made on an individual resource basis.

Once the U.S. Department of Transportation determines that a transportation use of a Section 4(f) property (after consideration of any impact avoidance, minimization, and mitigation or enhancement measures) results in a *de minimis* impact on that property, an analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process for these properties is complete. Below is a description of the *de minimis* impacts by alternative. The impacts are also shown in Exhibit 5.9-2: Eligible 4(f) Architectural Property Use

by Alternative – Minimize 4(f) Impacts Alternative on pages 5-48
through 5-80 and Exhibit 5.9-3: Eligible 4(f) Architectural Property
Use by Alternative – West Alternative on pages 5-81 through 5-113.

Exhibit 5.4-1: *De Minimis* Impacts

Address ^a	Nature of <i>De Minimis</i> Impact	
	Minimize 4(f) Impacts Alternative	West Alternative
1451 South 2000 West	Minor impact from cut/fill ^b	Minor impact from cut/fill
1419 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
1401 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
1373 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
1317 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
1217 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
1189 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
1147 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
1133 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
963 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
723 South 2000 West	NA ^c	Minor impact from cut/fill
39 South 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
220 North 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
310 North 200 West	Minor impact from cut/fill	Minor impact from cut/fill
647 North 2000 West	Minor impact from cut/fill	NA
667 North 2000 West	Minor impact from cut/fill	NA
817 North 2000 West	Minor impact from cut/fill	NA
868 North 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
881 North 2000 West	Minor impact from cut/fill	NA
1071 North 2000 West	Minor impact from cut/fill	NA
1141 North 2000 West	Minor impact from cut/fill	NA
1253 North 2000 West	Minor impact from cut/fill	NA
1969 North 2000 West	Minor impact from cut/fill	NA
2162 North 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
2184 North 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
2282 North 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
1988 West 2300 North	Minor impact from cut/fill	Minor impact from cut/fill
2342 North 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
2404 North 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
2422 North 2000 West	Minor impact from cut/fill	Minor impact from cut/fill
2541 North 2000 West	Minor impact from cut/fill	NA
5986 South 3500 West	Minor impact from cut/fill	Minor impact from cut/fill
5939 South 3500 West	Minor impact from cut/fill	Minor impact from cut/fill
5867 South 3500 West	Minor impact from cut/fill	Minor impact from cut/fill
5844 South 3500 West	Minor impact from cut/fill	Minor impact from cut/fill



Address ^a	Nature of <i>De Minimis</i> Impact	
	Minimize 4(f) Impacts Alternative	West Alternative
5839 South 3500 West	Minor impact from cut/fill	NA
5823 South 3500 West	Minor impact from cut/fill	Minor impact from cut/fill
5720 South 3500 West	NA	Minor impact from cut/fill
4180 Midland Drive	NA	Minor impact from cut/fill
4148 Midland Drive	NA	Minor impact from cut/fill
3982 Midland Drive	Minor impact from cut/fill	Minor impact from cut/fill
3964 Midland Drive	Minor impact from cut/fill	Minor impact from cut/fill
3801 Midland Drive	Minor impact from cut/fill	NA
2008 West 3300 South	Minor impact from cut/fill	Minor impact from cut/fill

^a A "2" in front of an address means the address is estimated.

^b Minor impact from cut/fill equates to strip take where no NRHP-eligible buildings or contributing features would be affected.

^c NA – *De minimis* not applicable for this property.

5.5 Avoidance Alternatives for Section 4(f) Properties

This section evaluates avoidance alternatives or other measures that were considered for Section 4(f) resources where there was a use of the property that didn't qualify as *de minimis* because the impacts under Section 106 were considered adverse. Where the action alternatives would use the land from a 4(f) property, it is necessary to evaluate alignment alternatives that avoid these properties. "Total avoidance" alternatives, including off-corridor alignments, were considered for the Minimize 4(f) Impacts and West Alternatives.

5.5.1 Consideration of an Off-Corridor Avoidance Alternative

The feasibility of improving other north-south roads besides S.R. 108 was evaluated in the section titled Improve Other Area Roads Alternative in Section 2.1.2.1, Evaluation of the Initial Alternatives.

During the S.R. 108 scoping process, several public comments suggested that improvements should be made to other north-south roads adjacent to S.R. 108 to reduce congestion and the need for improvements to S.R. 108. Some comments suggested widening 1000 West and 3000 West, and other comments suggested that

building the North Legacy Parkway west of the project area would reduce the need for improvements to S.R. 108. In response to these comments, the Improve Other Area Roads Alternative was developed and evaluated in detail in Chapter 2, Alternatives.

1000 West (2700 West in Roy)

The existing 1000 West roadway (2700 West in Roy) is not a through street from S.R. 127 to S.R. 126. The road exists, with a few small gaps, between S.R. 108 (Antelope Drive) in Syracuse and 4800 South in Roy. Therefore, either a new road would have to be created north of 4800 South along a yet-to-be-determined alignment or 1000 West would have to be connected to S.R. 108 via the existing 4800 South. A field study of historic structures was conducted along 1000 West as well as along 4800 South.

If 1000 West were connected to S.R. 108 via 4800 South, an estimated total of 148 historic architectural properties would require a reconnaissance-level architectural survey, and an estimated 83 of these properties would likely be eligible for the NRHP. An additional 14 properties were documented along S.R. 108 between 4800 South and S.R. 126 as part of the S.R. 108 project field surveys. Ten of these properties were determined to be eligible for the NRHP. Therefore, a combined total of about 162 properties, 93 of which would likely be eligible for the NRHP, would require Section 4(f) consideration under an alternative that implements this roadway scenario. This is a much greater total number of properties and greater number of NRHP-eligible properties than what was identified for the main S.R. 108 project corridor. In addition, widening 1000 West would affect Kiwanis Park and Heritage Park in Clinton, both of which are Section 4(f) properties.

3000 West (4500 West in Roy)

Because the existing 3000 West is not continuous, two reasonable east-west connections to S.R. 126 (Antelope Drive) were considered. The first east-west route considered was 4000 South in Roy between 3000 West and S.R. 108. The second east-west route considered was 3300 South between 3000 West and the S.R. 108/S.R. 126 intersection. A field study of historic structures was conducted along 3000 West as well as along both connector routes.



3000 West Corridor

About 86 historic architectural properties were documented between Antelope Drive and 3300 South, of which 48 would likely be considered eligible for the NRHP. As a whole, these buildings appear to retain the same degree of structural integrity as the historic buildings that are present along S.R. 108. In addition to historic architectural properties, 3000 West crosses one historic railroad grade (with some physical evidence potentially present west of the road), the Layton Canal, and the Hooper Canal. There is also an extensive historic irrigation ditch system along much of 3000 West.

4000 South Connector

4000 South between 3000 West and S.R. 108 includes about 14 historic architectural properties, eight of which would likely be considered eligible for the NRHP. Combining this east-west connector with 3000 West would result in an estimated 100 historic properties to consider, of which 52 would likely be eligible for the NRHP. An additional 11 properties were documented along S.R. 108 between 4000 South and S.R. 126 as part of the S.R. 108 project field surveys. Eight of these properties were determined to be eligible for the NRHP. Therefore, a combined total of about 111 properties, 60 of which would likely be eligible for the NRHP, would require Section 4(f) consideration under an alternative that implements this roadway scenario. This is nearly identical to the total number of properties and number of eligible properties identified for the main S.R. 108 project corridor.

In addition to historic architectural properties, at least one archaeological site (remnants of a former residence), the Hooper Canal, the West Hooper Branch Canal, the South Branch Hooper Canal, the Layton Canal, and an extensive historic ditch system are present along 4000 South.

3300 South Connector

3300 South between 3000 West and S.R. 108/S.R. 126 includes about 16 historic architectural properties, nine of which would likely be considered eligible for the NRHP. Combining this east-west connector with 3000 West would result in an estimated 102 historic architectural properties to consider, 57 of which would likely be

eligible for the NRHP. An additional historic architectural property was documented along 3300 South (at 2008 West) as part of the S.R. 108 project field surveys. This property was determined to be eligible for the NRHP. Therefore, a combined total of about 103 properties, 58 of which would likely be eligible for the NRHP, would require Section 4(f) consideration under an alternative that implements this roadway scenario. This is nearly identical to the total number of properties and number of NRHP-eligible properties documented along the main S.R. 108 project corridor.

In addition to historic architectural properties, the Hooper Canal, the West Hooper Branch Canal, the South Branch Hooper Canal, the Layton Canal, the South Branch Wilson Canal, and a historic extensive ditch system are present along this segment of 3300 South. 3000 West currently ends at Ponds Park in Clinton at about 2300 North and starts again at 6000 South in Roy. Completing this segment as a through road would affect Ponds Park in Clinton (a Section 4(f) property).

In summary, the Improve Other Area Roads Alternative would not meet the project's purpose and would result in a greater number of 4(f) impacts to architectural properties and parks than would improvements to S.R. 108. It was also determined that improving 1000 West and 3000 West would not be consistent with local or regional land use and transportation plans or planned growth, would not eliminate roadway deficiencies, and would not improve multi-modal use of S.R. 108. 1000 West and 3000 West would be used by less traffic than a similarly sized road such as S.R. 108, therefore increasing congestion on other roads. In addition, improving 1000 West or 3000 West would not provide regional connectivity. For these reasons, the Improve Other Area Roads Alternative was eliminated from further study. These reasons also prevent 1000 West or 3000 West from being used as an off-corridor avoidance alternative to avoid impacts to 4(f) properties along S.R. 108.

5.5.2 Consideration of a Reduced Roadway Cross-Section

Section 2.1.3.1, Development of the Preliminary Five-Lane Alternatives, describes the evaluation of the 110-foot cross-section developed for the action alternatives. The analysis concluded that



reducing the cross-section to less than 110 feet would not allow the project to meet the purpose of eliminating roadway deficiencies associated with a lack of shoulders and turn lanes in order to reduce accident rates on S.R. 108. In addition, reducing the cross-section would not provide improved bicycle, pedestrian, and transit facilities.

A reduced cross-section would have an inadequate clear zone (18.5 feet), which would be less safe, would require a design exception from FHWA, and would not meet UDOT standards. Providing the appropriate roadway width for each cross-section element is necessary to meet the project purpose of improving safety.

In addition, reducing the lane and shoulder widths would reduce the capacity of the road. With reduced shoulder and lane widths, the capacity of the Five-Lane Alternative would be reduced to 36,000 vehicles per day, which would result in LOS F for three segments. This would not meet the local and regional mobility objectives in the screening criteria described in Section 2.1.2, Level 1 Screening.

Another element of the need for the project is the lack of continuous sidewalks and bicycle lanes along S.R. 108. There are three schools directly on S.R. 108 and five others off S.R. 108 whose service boundaries cross S.R. 108, so many students either use S.R. 108 to bike or walk to school or need to cross S.R. 108 to get to school. Providing the desirable safety standard for these elements instead of the minimum standard is important for pedestrian safety.

These reasons prevent a reduced roadway cross-section from being used as an avoidance alternative to avoid impacts to 4(f) properties along S.R. 108.

5.5.3 Consideration of a New In-Corridor Avoidance Alternative

This section identifies the individual avoidance alternatives for the architectural properties that would be used by the S.R. 108 action alternatives. In-corridor avoidance alternatives were considered only for the two action alternatives carried forward (Minimize 4(f) Impacts and West Alternatives). The other three action alternatives not carried forward (Center, Center Meander, and East Alternatives) were not considered as potential in-corridor avoidance alternatives since all three had greater 4(f) impacts (see Exhibit 2.1-13: Summary of Impacts from the Preliminary Five-Lane Alternatives). Exhibit

5.5-1 summarizes the impacts to the 4(f) properties not included in Exhibit 5.4-1: *De Minimis* Impacts above.

Exhibit 5.5-1: Section 4(f) Use by Alternative (Not Including *De Minimis* Impacts)

Alternative	Total Number of Properties
Minimize 4(f) Impacts Alternative	14
West Alternative	22

5.5.4 Avoidance of Architectural Properties

The impacts of the S.R. 108 action alternatives on Section 4(f) architectural properties are shown in Exhibit 5.9-2: Eligible 4(f) Architectural Property Use by Alternative – Minimize 4(f) Impacts Alternative on pages 5-48 through 5-80 and Exhibit 5.9-3: Eligible 4(f) Architectural Property Use by Alternative – West Alternative on pages 5-81 through 5-113. To meet the local and regional mobility objectives for the S.R. 108 project (see Section 1.2.1, Purpose of the Project), both the Minimize 4(f) Impacts and West Alternatives would require a five-lane cross-section between Antelope Drive and 3500 South.

5.5.4.1 Minimize 4(f) Impacts Alternative

During the design process, the proposed Minimize 4(f) Impacts Alternative alignment was shifted to avoid direct use (relocation) of architectural properties as much as possible and to limit constructive use of the properties.

This section summarizes the avoidance alternatives for individual 4(f) architectural properties. For the architectural properties, complete avoidance of each property was attempted first. Where complete avoidance was not possible, properties with greater architectural integrity were avoided first.

Avoidance Alternatives for Individual 4(f) Architectural Properties – Minimize 4(f) Impacts Alternative

Of the 61 NRHP-eligible architectural properties adjacent to S.R. 108, 14 were adversely affected by the Minimize 4(f) Impacts Alternative and so require avoidance alternatives. The avoidance



alternatives are shown in Exhibit 5.9-4: Eligible 4(f) Architectural Properties Avoidance Alternatives on pages 5-114 through 5-130.

For most of the architectural properties, the current legal boundaries match the original historic property boundaries (see Section 4.14, Impacts to Historic, Archaeological, and Paleontological Resources). For this reason, the current legal property boundaries were used to define the boundaries of architectural properties for the purpose of determining the 4(f) use and subsequent avoidance alternatives.

Because the properties are adjacent to S.R. 108, the use of properties would not introduce a new source of noise or vibration that would alter the properties' historic fabric or integrity.

As described in Exhibit 4.3-1: Property Impact Descriptions, a direct impact to a residence or business occurs when an existing structure is within the right-of-way of the proposed improvements. This type of impact is referred to as a *relocation* because the entire property would need to be acquired and the residents or business would need to relocate. A potential relocation occurs when the right-of-way required for the project affects the property and is between 1 foot and 15 feet away from the structure.

1663 South 2000 West (Sheet 1 of Exhibit 5.9-4). This property is eligible for significance as one of the earliest and last remaining historic commercial structures in Syracuse. It is not eligible for architecture. Modifications to the structure include application of stucco siding in the entry and alteration of the windows. Complete avoidance of this property is *not* prudent and feasible. Impacts to this property are a direct result of widening 2000 West (S.R. 108), and the use of this property involves a direct impact that would require the removal of the primary historic building. Avoidance of this property would require shifting the alignment west, which would directly affect Syracuse's new commercial and town center. (The center is not shown in Sheet 1 because the development was built after the 2006 aerial photograph was taken.)

The avoidance alternative would require relocation of three new businesses (built in 2006) that are associated with this commercial development, which is located on the northwest corner of 1700 South (Antelope Drive) and S.R. 108. The Syracuse Town Center development is part of the City's new master-planned community and is identified in the long-range land-use plan. Relocating a portion

of this new development would affect the functionality and efficiency of the rest of the development and would result in negative economic impacts to Syracuse. In late 2000, the City recognized that planning the development of the Syracuse town center was important because the City wanted to control the development of the area rather than allow unplanned development to occur. The City assembled an experienced planning team and prepared a master plan for the town center area. The master plan finally came to fruition in 2006 when construction began.

A shift to the west would also require the loss of about 75% of the parking lot of an accessory building associated with Syracuse Junior High School, which would make the parking lot unusable.

Furthermore, an alignment shift to the west would require the reconfiguration of the intersection at Antelope Drive and S.R. 108 as well as additional construction along S.R. 108 south of 1700 South, which is outside the study area limits. The intersection reconfiguration would require utility relocations, additional redesign and layout of signal locations, and increased disruption to general traffic as well as to the businesses in the Syracuse town center during construction. The right-of-way and construction costs for the intersection reconfiguration south of 1700 South would be about \$2.3 million.

1609 South 2000 West (Sheet 1 of Exhibit 5.9-4). This property is a Foursquare; modifications include replacement of windows. The use of this property results from a substantive impact from cut and fill, which would require the removal of the primary historic building. Complete avoidance of this property is *not* feasible and prudent for the same reasons as described for 1663 South 2000 West.

850 South 2000 West (Sheet 2 of Exhibit 5.9-4). This property is the Utah Onions, Inc., warehouse; modifications include several additions both during and after the historic period. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108, and the use of this property would involve a direct impact that would require the removal of the primary historic building. Avoidance of this property would require shifting the alignment east, which would require relocation of three 4(f) eligible residential properties located at 963 South, 1147 South, and 1133 South. Two of the three 4(f)



eligible properties (963 South and 1147 South) have been modified and therefore have lost some integrity. However, the structure at 1133 South has no observable modifications and it also has a contributing historic ditch. Additionally, an alignment shift would require relocation of seven other non-eligible residences located along the east side of S.R. 108 between 1133 South and 963 South.

723 South 2000 West (Sheet 3 of Exhibit 5.9-4). This property is a Cross-Wing in the general Victorian style; modifications include replacement windows and an in-period addition now clad in stucco. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108, specifically due to the northbound and southbound right-turn lanes. Use of this property would involve a direct impact that would require the removal of the primary historic building. Avoidance of this property would require shifting the alignment west, which would require relocation of four non-eligible residential properties, potential relocation of three other non-eligible residential properties along the west side of S.R. 108 north of 700 South, and potential relocation of two businesses in the Benchmark Homes office complex south of 700 South. The potential relocation of these two businesses would consequently leave only one of three office buildings in this development in place. Additionally, parking spaces would be lost from the office complex. If UDOT determines during the right-of-way acquisition process that the businesses would not be relocated, the building entrances in front, along with patio space, would likely need to be reconfigured due to the close proximity of the roadway.

150 South 2000 West (Sheet 4 of Exhibit 5.9-4). This property is a WWII-Era Cottage in the general Ranch/Rambler style; modifications include replacement of some windows and addition of a metal sheet roof. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108. The use of this property results from a substantive impact from cut and fill, which would require the removal of the primary historic building. Avoidance of this property would require shifting the alignment east, which would require relocation of eight individual properties.

Three of the properties are 4(f) eligible residential properties along the east side of S.R. 108 (145 South, 39 South, and 20 South). None of the three 4(f) eligible properties appear to have been modified, so they are therefore considered to have more integrity than the structure at 150 South, which has been modified in several different ways as described above. Five non-eligible residential properties along the east side of S.R. 108 would also require relocation due to an alignment shift, and one non-eligible residential property would require a strip take.

58 South 2000 West (Sheet 4 of Exhibit 5.9-4). This property is a Period Cottage in the general Period Revival style; modifications include replacement of windows. The use of this property would involve a direct impact, which would require the removal of the primary historic building. Complete avoidance of this property is *not* feasible and prudent for the same reasons as described for 150 South 2000 West.

796 North 2000 West (Sheet 6 of Exhibit 5.9-4). This property is a WWII-Era Cottage; modifications include replacement of windows. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108, and the use of this property would involve a direct impact that would require the removal of the primary historic building. Avoidance of this property would require shifting the alignment to the west, which would require relocation of three 4(f) eligible residential properties: 647 North, 817 North, and 881 North. Two of the three 4(f) eligible properties have no observable modifications and therefore are considered to have more integrity than 796 North. Three non-eligible residential properties would also require relocation, while five additional non-eligible homes and two other 4(f) eligible residential properties (667 North and 868 North) would require strip takes.

1197 North 2000 West (Sheet 7 of Exhibit 5.9-4). This property is a duplex of the Ranch/Rambler style; modifications include possible replacement of windows and possible post-construction addition of wood sheet siding. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural residential property are a direct result of widening S.R. 108. The use of this property involves a direct impact to a historic ditch, which is a contributing



feature to the significance of the property. Avoidance of this property would require an alignment shift to the east, which would require relocation of a 4(f) residential property at 1318 North. The 4(f) structure at 1318 North is a period English Cottage with no observable modifications and therefore has more integrity than the structure at 1197 North.

1318 North 2000 West (Sheet 9 of Exhibit 5.9-4). This property is a period English Cottage with no modifications. The property includes five contributing outbuildings and a probable historic tree and probable historic ditch. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural residential property are a direct result of widening S.R. 108, and the use of this property involves a direct impact that would require the removal of the primary historic building. Avoidance of this property would require an alignment shift to the west, which would require potential relocation of two 4(f) eligible residential properties (1197 North and 1253 North). While 1318 North has no observable modifications and therefore has more integrity than 1197 North and 1253 North, avoidance would also require relocation of three non-eligible residential structures.

1693 North 2000 West (Sheet 10 of Exhibit 5.9-4). This property is an Early Ranch/Rambler; modifications include the addition of medium-width aluminum siding, replacement of windows, a possible carport addition, and a rear addition. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108. The use of this property results from a substantive impact from cut and fill, which would require the removal of the primary historic building. Avoidance would require an alignment shift to the east, which would eliminate about 80 to 100 total parking spaces from five businesses adjacent to S.R. 108. All of these businesses are separate from the Wal-Mart, and the 80 to 100 parking spaces that would be lost are not part of the Wal-Mart parking area, so the total number of spaces per business would be substantially reduced. The reduction in parking could make the businesses unable to operate from a zoning perspective as well as from a functionality perspective.

The reduction in parking spaces at the Sonic Drive-In would likely make the drive-in unable to operate. Likewise, the loss of the paved

area used to access the drive-up window at the America First Credit Union would also negatively affect the business and would probably require the credit union to be relocated. The loss of parking could also affect the businesses on the east corners of 1800 North and 2000 West.

Shifting the alignment east would also require realigning the 1800 North/2000 West intersection, which would require utility relocations, additional redesign and layout of signal locations, and increased disruption to businesses during construction.

1993 North 2000 West (Sheet 12 of Exhibit 5.9-4). This property is a WWII-Era Cottage; modifications include a rear addition and replacement of windows. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108. The use of this property results from a substantive impact from cut and fill, which would require removal of the primary historic building. Avoidance of this property would require an alignment shift to the east, which would require relocation of nine residential properties due to direct impacts. Avoidance of 1993 North would require relocation of two 4(f) eligible residential properties (2184 North and 2212 North), both of which appear to be unmodified and therefore have more integrity than 1993 North. In addition, avoidance of 1993 North would require relocation of three other 4(f) eligible residential properties (2162 North, 2282 North, and 2300 North). Four non-eligible structures would also require relocation due to an alignment shift.

2133 North 2000 West (Sheet 12 of Exhibit 5.9-4). This property is a Bungalow residence in the Bungalow and Art and Crafts styles; modifications include replacement of windows. The use of this property involves a direct impact that would require the removal of the primary historic building. Complete avoidance of this property is *not* feasible and prudent for the same reasons as described for 1993 North 2000 West.

5720 South 3500 West (Sheet 15 of Exhibit 5.9-4). This property is a Contemporary type and style; modifications include the conversion of the garage to living space with modern windows. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108, and the use of this property involves a direct impact that would require



the removal of the primary historic building. Avoidance of this property would require an alignment shift to the west, which would require very large strip takes from two 4(f) eligible residential properties on the west side of S.R. 108 (5867 South and 5823 South). Both properties are set back from the road and therefore probably wouldn't require relocation. However, the size of the strip takes would be large enough that the setting and feeling of the properties would likely be compromised. In addition, the alignment shift would require the potential relocation of eight non-eligible residential properties.

3713 Midland Drive (Sheet 17 of Exhibit 5.9-4). Only the agricultural outbuildings are eligible; the primary outbuilding is a shed or possible milk barn which is in fair to poor structural condition. Modifications include boarding up of windows and removal of the historic residence associated with the property. The use of this property involves a direct impact that would require the removal of the historic outbuilding. Complete avoidance of this property is *not* feasible and prudent. Avoidance of this property would require a major alignment shift to the east, which would require relocation of at least five non-eligible properties in the Country Meadows Estates and two non-eligible properties in Karol's Mobile Estates. Additionally, strip takes would be required from four other properties in Country Meadows, and the entrance to Karol's would need to be completely reconfigured, which would negatively affect the circulation of vehicles entering and exiting the development.

5.5.4.2 West Alternative

During the design process, the proposed West Alternative alignment was shifted west to avoid direct use (relocation) of architectural properties as much as possible and to limit constructive use of the properties.

This section summarizes the avoidance alternatives for individual 4(f) architectural properties. For the architectural properties, complete avoidance of each property was attempted first. Where complete avoidance was not possible, properties with greater architectural integrity were avoided first.

Avoidance Alternatives for Individual 4(f) Architectural Properties – West Alternative

Of the 61 NRHP-eligible architectural properties adjacent to S.R. 108, 22 were adversely affected by the West Alternative and so require avoidance alternatives. The avoidance alternatives are shown in Exhibit 5.9-4: Eligible 4(f) Architectural Properties Avoidance Alternatives on pages 5-114 through 5-130.

For most of the architectural properties, the current legal boundaries match the original historic property boundaries (see Section 4.14, Impacts to Historic, Archaeological, and Paleontological Resources). For this reason, the current legal property boundaries were used to define the boundaries of architectural properties for the purpose of determining the 4(f) use and subsequent avoidance alternatives.

Because the properties are adjacent to S.R. 108, the use of properties would not introduce a new source of noise or vibration that would alter the properties' historic fabric or integrity.

As described in Exhibit 4.3-1: Property Impact Descriptions, a direct impact to a residence or business occurs when an existing structure is within the right-of-way of the proposed improvements. This type of impact is referred to as a *relocation* because the entire property would need to be acquired and the residents or business would need to relocate. A potential relocation occurs when the right-of-way required for the project affects the property and is between 1 foot and 15 feet away from the structure.

1663 South 2000 West (Sheet 1 of Exhibit 5.9-4). This property is eligible for significance as one of the earliest and last remaining historic commercial structures in Syracuse. It is not eligible for architecture. Complete avoidance of this property is *not* prudent and feasible. Impacts to this property are a direct result of widening 2000 West (S.R. 108), and the use of this property involves a direct impact that would require the removal of the primary historic building. Avoidance of this property would require shifting the alignment west, which would directly affect Syracuse's new commercial and town center. (The center is not shown on Sheet 1 because the development was built after the 2006 aerial photograph was taken.)

The avoidance alternative would require relocation of three businesses associated with this commercial development, which is



located on the northwest corner of 1700 South (Antelope Drive) and S.R. 108. The Syracuse Town Center development is part of the City's new master-planned community and is identified in the long-range land use plan. Relocating a portion of this new development would affect the functionality and efficiency of the rest of the development. Additionally, a shift to the west would require the loss of about 75% of the parking lot of an accessory building associated with Syracuse Junior High School, which would make the parking lot unusable. Furthermore, an alignment shift to the west would require the reconfiguration of the intersection at Antelope Drive and S.R. 108 as well as additional construction along S.R. 108 south of 1700 South, which is outside the study area limits. The intersection configuration would require utility relocations, additional redesign and layout of signal locations, and increased disruption to general traffic as well as to the businesses in the Syracuse Town Center during construction.

1609 South 2000 West (Sheet 1 of Exhibit 5.9-4). This property is a Foursquare; modifications include replacement of windows. The use of this property results from a substantive impact from cut and fill, which would require the removal of the primary historic building. Complete avoidance of this property is *not* feasible and prudent for the same reasons as described for 1663 South 2000 West.

850 South 2000 West (Sheet 2 of Exhibit 5.9-4). This property is the Utah Onions, Inc., warehouse; modifications include several additions both during and after the historic period. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108, and the use of this property involves a direct impact that would require the removal of the primary historic building. Avoidance of this property would require shifting the alignment east, which would require relocation of three 4(f) eligible residential properties located at 963 South, 1147 South, and 1133 South. Two of the three 4(f) eligible properties (963 South and 1147 South) have been modified and therefore have lost some integrity. However, the structure at 1133 South has no observable modifications, and it also has a contributing historic ditch. Additionally, an alignment shift would require relocation of seven other non-eligible residences located along the east side of S.R. 108 between 1133 South and 963 South.

150 South 2000 West (Sheet 4 of Exhibit 5.9-4). This property is a WWII-Era Cottage in the general Ranch/Rambler style; modifications include replacement of some windows and addition of a metal sheet roof. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108. The use of this property results from a substantive impact from cut and fill, which would require the removal of the primary historic building. Avoidance of this property would require shifting the alignment east, which would require relocation of eight individual properties.

Three of the properties are 4(f) eligible residential properties along the east side of S.R. 108 (145 South, 39 South, and 20 South). None of the three 4(f) eligible properties appear to have been modified, so they are considered to have more integrity than the structure at 150 South, which has been modified in several different ways as described above. Five non-eligible residential properties along the east side of S.R. 108 would also require relocation due to an alignment shift, and one non-eligible residential property would require a strip take.

58 South 2000 West (Sheet 4 of Exhibit 5.9-4). This property is a Period Cottage in the general Period Revival style; modifications include replacement of windows. The use of this property involves a direct impact that would require the removal of the primary historic building. Complete avoidance of this property is *not* feasible and prudent for the same reasons as described for 150 South 2000 West.

647 North 2000 West (Sheet 5 of Exhibit 5.9-4). This property is a WWII-Era Cottage; modifications include the addition of medium-width aluminum siding and replacement of the windows. Complete avoidance of this property *is* prudent and feasible. Impacts to this architectural property are a direct result of widening S.R. 108 to the west, and the use of this property involves a direct impact that would require the removal of the primary historic building. A prudent and feasible alternative is the Minimize 4(f) Impacts Alternative.

Although one eligible property on the east side of the road (796 North) would be affected with this avoidance alternative, impacts to five 4(f) eligible residential properties (647 North, 667 North, 868 North, 817 North, and 881 North) would be avoided or minimized.



667 North 2000 West (Sheet 5 of Exhibit 5.9-4). This property is a Ranch/Rambler; modifications include replacement of windows and a side addition, possibly during the historic period. The use of this property results from a substantive impact from cut and fill, which would require the removal of the primary historic building. Complete avoidance of this property *is* prudent and feasible for the same reasons as described for 647 North 2000 West.

817 North 2000 West (Sheet 5 of Exhibit 5.9-4). This property is a Ranch/Rambler with no apparent modifications. The use of this property involves a direct impact that would require the removal of the primary historic building. Complete avoidance of this property *is* prudent and feasible for the same reasons as described for 647 North 2000 West.

881 North 2000 West (Sheet 5 of Exhibit 5.9-4). This property is an Early Ranch/Rambler with no apparent modifications. The use of this property involves a direct impact that would require the removal of the primary historic building. Complete avoidance of this property *is* prudent and feasible for the same reasons as described for 647 North 2000 West.

796 North 2000 West (Sheet 6 of Exhibit 5.9-4). This property is a WWII-Era Cottage; modifications include replacement of windows. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108, and the use of this property involves a direct impact that would require the removal of the primary historic building. Avoidance of this property would require shifting the alignment to the west, which would require relocation of three 4(f) eligible residential properties (647 North, 817 North, and 881 North). Two of the three 4(f) eligible properties have no observable modifications and therefore are considered to have more integrity than 796 North. Three non-eligible residential properties would also require relocation, while five additional non-eligible homes and two other 4(f) eligible residential properties (667 North and 868 North) would require strip takes.

1071 North 2000 West (Sheet 7 of Exhibit 5.9-4). This property is a Hall-Parlor or Single-Cell residence of Early 20th-Century style; modifications include replacement of windows. Complete avoidance of this property *is* prudent and feasible. Impacts to this architectural

property are a direct result of widening S.R. 108 to the west, and the use of this property involves a direct impact that would require the removal of the primary historic building. A prudent and feasible alternative is the Minimize 4(f) Impacts Alternative, which would minimize impacts to 1071 North, 1141 North, 1197 North, and 1253 North.

1141 North 2000 West (Sheet 7 of Exhibit 5.9-4). This property is an Early Ranch/Rambler residence; modifications include replacement of windows. The use of this property results from a substantive impact from cut and fill, which would require the removal of the primary historic building. Complete avoidance of this property *is* prudent and feasible for the same reasons as described for 1071 North 2000 West.

1197 North 2000 West (Sheet 8 of Exhibit 5.9-4). This property is a duplex of Ranch/Rambler style; modifications include possible replacement of windows and possible post-construction addition of wood sheet siding. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural residential property are a direct result of widening S.R. 108, and the use of this property involves a direct impact that would require the removal of the primary historic building. Avoidance of this property would require an alignment shift to the east, which would require relocation of a residential property at 1318 North. The structure at 1318 North is a period English Cottage with no observable modifications and therefore has more integrity than the structure at 1197 North.

1253 North 2000 West (Sheet 7 of Exhibit 5.9-4). This property is a WWII-Era Cottage of general Ranch/Rambler style; modifications include replacement of windows. The use of this property involves a direct impact that would require the removal of the primary historic building. Complete avoidance of this property *is* prudent and feasible for the same reasons as described for 1071 North 2000 West.

1693 North 2000 West (Sheet 10 of Exhibit 5.9-4). This property is an Early Ranch/Rambler; modifications include the addition of medium-width aluminum siding, replacement of windows, a possible carport addition, and a rear addition. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108, and the use of this property involves a direct impact that would require the removal of



the primary historic building. Avoidance would require an alignment shift to the east which would eliminate about 80 to 100 total parking spaces from five businesses adjacent to S.R. 108. All of these businesses are separate from the Wal-Mart, and the 80 to 100 parking spaces that would be lost are not part of the Wal-Mart parking area, so the total number of spaces per business would be substantially reduced. The reduction in parking could make the businesses unable to operate from a zoning perspective as well as from a functionality perspective.

The reduction in parking spaces at the Sonic Drive-In would likely make the drive-in unable to operate. Likewise, the loss of the paved area used to access the drive-up window at the America First Credit Union would also negatively affect the business and would probably require the credit union to be relocated. The loss of parking could also affect the businesses on the east corners of 1800 North and 2000 West.

Shifting the alignment east would also require realigning the 1800 North/2000 West intersection, which would require utility relocations, additional redesign and layout of signal locations, and increased disruption to businesses during construction.

1969 North 2000 West (Sheet 11 of Exhibit 5.9-4). This property is a Ranch/Rambler; modifications include a rear addition of indeterminate age and replacement of the windows and doors. Complete avoidance of this property *is* prudent and feasible. Impacts to this architectural property are a direct result of widening S.R. 108 to the west, and the use of this property involves a direct impact that would require the removal of the primary historic building. A prudent and feasible alternative is the Minimize 4(f) Impacts Alternative, which would minimize impacts to 1969 North.

1993 North 2000 West (Sheet 12 of Exhibit 5.9-4). This property is a WWII-Era Cottage; modifications include a rear addition and replacement of windows. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108, and the use of this property involves a direct impact that would require the removal of the primary historic building. Avoidance of this property would require an alignment shift to the east, which would require relocation of nine residential properties due to direct impacts. Avoidance of 1993 North

would require relocation of two 4(f) eligible residential properties (2184 North and 2212 North), both of which appear to be unmodified and therefore have more integrity than 1993 North. In addition, avoidance of 1993 North would require relocation of three other 4(f) eligible residential properties (2162 North, 2282 North, and 2300 North). Four non-eligible structures would also require relocation from an alignment shift.

2133 North 2000 West (Sheet 12 of Exhibit 5.9-4). This property is a Bungalow residence in the Bungalow and Art and Crafts styles; modifications include replacement of windows. The use of this property involves a direct impact that would require the removal of the primary historic building. Complete avoidance of this property is *not* feasible and prudent for the same reasons as described for 1993 North 2000 West.

2541 North 2000 West (Sheet 13 of Exhibit 5.9-4). This property is a WWII-Era Cottage with no apparent modifications. Complete avoidance of this property is *not* feasible and prudent. Impacts to this architectural property are a direct result of widening S.R. 108, and the use of this property involves a direct impact that would require the removal of the primary historic building. Avoidance of this property would require an alignment shift to the east, which would require relocation of two 4(f) eligible residential properties (2404 North and 2422 North). 2541 North has no observable modifications; therefore, it has more integrity than 2404 North and 2422 North, both of which have been modified. The alignment shift would also require relocation of three non-eligible homes on the east side of the road.

5839 South 2000 West (Sheet 14 of Exhibit 5.9-4). This property is a residence of undefined type and Contemporary style; modifications include replacement of windows and doors. Complete avoidance of this property *is* prudent and feasible. Impacts to this architectural property are a direct result of widening S.R. 108 to the west, and the use of this property involves a direct impact that would require the removal of a historic retaining wall, which is a contributing feature to the property. A prudent and feasible alternative is the Minimize 4(f) Impacts Alternative, which would minimize impacts to 5839 North.



3801 Midland Drive (Sheet 16 of Exhibit 5.9-4). This property is a Ranch/Rambler; modifications include replacement of windows, a minor rear addition to the garage, and enclosure of the breezeway between the house and detached garage. The use of this property results from a substantive impact from cut and fill, which would require the removal of the primary historic building. Complete avoidance of this property is *not* feasible and prudent. Avoidance of this property would require a major alignment shift to the east, which would require relocation of at least two non-eligible properties in Karol's Mobile Estates as well as relocation of another non-eligible property just west of Karol's. Additionally, the entrance to Karol's would need to be completely reconfigured, which would affect the circulation of vehicles entering and exiting the development.

3713 Midland Drive (Sheet 17 of Exhibit 5.9-4). Only the agricultural outbuildings are eligible; the primary outbuilding is a shed or possible milk barn which is in fair to poor structural condition. Modifications include boarding up of windows and removal of the historic residence associated with the property. The use of this property involves a direct impact that would require the removal of the primary historic building. Complete avoidance of this property is *not* feasible and prudent. Avoidance of this property would require a major alignment shift to the east, which would require relocation of at least five non-eligible properties in the Country Meadows Estates and two non-eligible properties in Karol's Mobile Estates. Additionally, strip takes would be required from four other properties in Country Meadows, and the entrance to Karol's would need to be completely reconfigured, which would negatively affect the circulation of vehicles entering and exiting the development.

5.5.4.3 Summary of Individual Avoidance Alternatives for 4(f) Architectural Properties

Of the 61 total NRHP-eligible architectural properties, 14 would be adversely affected by the Minimize 4(f) Impacts Alternative and 22 would be adversely affected by the West Alternative. Avoidance alternatives were developed for 26 individual properties in total since 10 properties were identically affected by both alternatives.

Because the Minimize 4(f) Impacts Alternative was developed to minimize 4(f) uses of properties, no avoidance alternatives were prudent or feasible for this alternative. As described above in Section 5.5.3, Consideration of a New In-Corridor Avoidance Alternative, the avoidance alternatives would collectively result in not only more 4(f) impacts but also in more overall residential and business relocations, which would result in unnecessary and otherwise unacceptable social and economic impacts. There would be 14 4(f) uses for the Minimize 4(f) Impacts Alternative. For the West Alternative, all of the feasible and prudent avoidance alternatives (nine in total) would be implemented. There would be 14 4(f) uses for the West Alternative.

5.6 Least Overall Harm Analysis

FHWA has concluded that, in accordance with 23 CFR 774.3(a)(1), there are no feasible and prudent avoidance alternatives. Therefore, this section provides an analysis of the Minimize 4(f) Impacts Alternative (Preferred Alternative) and the West Alternative to determine which alternative results in the least overall harm in light of the statute's preservationist purpose (23 CFR 774.3[c][1]). This analysis shows that the West Alternative would cause more overall harm than would the Minimize 4(f) Impacts Alternative.



5.6.1 Comparison of Harm to Section 4(f) Resources

In terms of the impacts from the Minimize 4(f) Impacts and West Alternatives on Section 4(f) resources, the Minimize 4(f) Impacts Alternative would use 14 historic resources and the West Alternative would use 22 historic resources. No other 4(f) resources such as recreation areas would be used by either alternative.

The qualitative impacts were considered for each alternative. Section 3.14, Historic, Archaeological, and Paleontological Resources, describes the different SHPO ratings.

- **SHPO A-rated** – Eligible/significant historic building that was built during the historic period and retains integrity; is an excellent example of a style or type; is unaltered or has only minor alterations or additions; or is individually eligible for the NRHP under Criterion C.
- **SHPO B-rated** – Eligible historic building that was built during the historic period and retains integrity; is a good example of a style or type, but is not as well-preserved or well-executed as “A” buildings; has more substantial alterations or additions than “A” buildings, though the overall integrity is retained; or is eligible for the NRHP as part of a potential historic district or primarily for historical, rather than architectural, reasons.

Appendix B, Determination of Eligibility and Finding of Effect and Native American Consultation, provides the SHPO ratings for each historic resource along S.R. 108. The Minimize 4(f) Impacts Alternative would use two SHPO A-rated buildings and 12 SHPO B-rated buildings. The West Alternative would use four SHPO A-rated buildings and 18 SHPO B-rated buildings. Overall, the Minimize 4(f) Impacts Alternative would use two fewer A-rated historic resources considered by the SHPO to be of more importance.

5.6.2 Least Overall Harm Analysis

This section discusses and compares the Minimize 4(f) Impacts and West Alternatives for each of the listed conditions in 23 CFR 774.3(2)(c). This regulation states, “If the analysis in paragraph (a)(1) of this section concludes that there is no feasible or prudent avoidance alternative, then the [FHWA] may approve only the alternative that:

- (1) Causes the least overall harm in light of the statute’s preservation purpose. The least overall harm is determined by balancing the following factors:
 - (i) The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
 - (ii) The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
 - (iii) The relative significance of each Section 4(f) property;
 - (iv) The views of the official(s) with jurisdiction over each Section 4(f) property;
 - (v) The degree to which each alternative meets the purpose and need for the project;
 - (vi) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
 - (vii) Substantial differences in costs among alternatives.



5.6.3 Ability To Mitigate Adverse Impacts to Each Section 4(f) Property

For adverse impacts to historic properties, mitigation would be the same for both of the alternatives. Mitigation measures have been developed for the adversely affected historic resources in a Memorandum of Agreement with the SHPO.

A Memorandum of Agreement has been executed between FHWA, UDOT, and the SHPO. The Memorandum of Agreement stipulates that the adversely affected historic resources will be mitigated through the completion of an Intensive-Level Survey. The Minimize 4(f) Impacts and West Alternatives are similar in terms of their ability to mitigate the impacts to historic properties. A copy of this Memorandum of Agreement is included in Appendix B, Determination of Eligibility and Finding of Effect and Native American Consultation.

The Intensive-Level Survey includes the following elements:

- Photographs that show such attributes as the interior, exterior, and streetscape. This will include an adequate number of professional-quality, black-and-white photographs.
- Research material including a copy and a negative of the legal historic tax card (if available).
- All materials will be placed on file with the Division of State History, Historic Preservation Office.

The certified local government and historical societies and organizations in Roy and Syracuse did not identify any properties of particular importance to their communities. No similar organizations exist for Clinton, West Point, or West Haven, the three other communities along S.R. 108.

5.6.4 Severity of Remaining Harm after Mitigation to the Protected Activities, Attributes, or Features That Qualify Each Property for Section 4(f) Protection

The historic resources used (not *de minimis*) by both alternatives would be completely removed.

5.6.5 Significance of Each Section 4(f) Property

The official with jurisdiction over the historic properties is the Utah SHPO. The S.R. 108 team has met with the SHPO on numerous occasions throughout this project. FHWA and UDOT have prepared a DOE/FOE, which documented historic resources in the S.R. 108 study area. The DOE/FOE establishes the eligibility rating for each historic resource and the type of effect that each will receive from the alternatives. The SHPO has agreed to the DOE/FOE, which is found in Appendix B, Determination of Eligibility and Finding of Effect and Native American Consultation. The SHPO ratings for each historic resource are found in the DOE/FOE. As shown, the Minimize 4(f) Impacts Alternative would use two SHPO A-rated buildings and 12 SHPO B-rated buildings. The West Alternative would use four SHPO A-rated buildings and 18 SHPO B-rated buildings. Overall, the Minimize 4(f) Impacts Alternative would use two fewer historic A-rated resources considered by the SHPO to be of more importance.

In addition, the certified local government of Syracuse and the Roy Historical Museum did not identify any properties along S.R. 108 of particular importance.

5.6.6 Views of Officials with Jurisdiction over Each Section 4(f) Property

The official with jurisdiction over the historic properties is the Utah SHPO. The S.R. 108 team has met with the SHPO on numerous occasions throughout this project. FHWA and UDOT have prepared a DOE/FOE, which documented historic resources. The DOE/FOE establishes the eligibility rating for each historic resource and the type of effect that each will receive from the alternatives. The SHPO has agreed to the DOE/FOE, which is found in Appendix B.

In addition, the certified local government of Syracuse and the Roy Historical Museum did not identify any properties along S.R. 108 of particular importance.



5.6.7 Degree to Which Alternatives Meet the Project Purpose

The Minimize 4(f) Impacts Alternative and the West Alternative would meet the project purpose equally.

5.6.8 Magnitude of Adverse Impacts on Other Resources after Reasonable Mitigation

This section discusses other environmental resources that would be affected by the Minimize 4(f) Impacts Alternative and the West Alternative. For most resources, the impacts of the alternatives would be similar except for farmland, Agriculture Protection Areas, residential and business relocations, noise, and historic resources. Exhibit 5.6-1 summarizes the impacts of these resources by alternative.

Exhibit 5.6-1: Comparison of Impacts

Impact Category	Alternative	
	Minimize 4(f) Impacts	West
Farmland	26.1 acres	27.9 acres
Agriculture Protection Areas (APAs)	4 APAs totaling 3 acres	2 APAs totaling 2 acres
Residential relocations	55	96
Business relocations	6	12
Noise	300 residences above criterion	250 residences above criterion
Historic resources	14 adverse affects	22 adverse affects

The Minimize 4(f) Impacts Alternative would have slightly less impacts to farmland and fewer impacts to historic resources. The main difference between the alternatives is the number of residential and business relocations. The West Alternative would cause 41 more residential relocations and six more business relocations. The greater number of residential relocations under the West Alternative would cause a greater disruption to the community by removing more families that have close connections to the community. Because the Minimize 4(f) Impacts Alternative would have fewer residential relocations, it would have higher noise impacts than the West Alternative.

5.6.9 Substantial Differences in Costs among Alternatives

The Minimize 4(f) Impacts Alternative (\$178,100,000) would cost slightly less than the West Alternative (\$201,700,000).

5.6.10 Conclusion

The Minimize 4(f) Impacts Alternative would have eight fewer Section 4(f) uses and substantially fewer residential and business relocations. The impacts to other resources would be similar between the alternatives. Given these greater impacts to Section 4(f) resources, the West Alternative is not a prudent alternative for avoiding or minimizing harm to the Section 4(f) resources used by the Minimize 4(f) Impacts Alternative. The Minimize 4(f) Impacts Alternative is the alternative that causes the least overall net harm.

5.7 Measures To Minimize Harm to Section 4(f) Properties

During the design process, design staff worked with the environmental resource specialist to initially avoid 4(f) properties by implementing alignment shifts, installing walls, and minimizing the construction limits. As discussed in Section 5.5.2, Consideration of a Reduced Roadway Cross-Section, reducing the cross-section to minimize 4(f) use would not meet the project purpose of improving safety on S.R. 108.

5.7.1 Mitigation and Memorandum of Agreement

A Memorandum of Agreement has been executed between FHWA, UDOT, and the SHPO. The Memorandum of Agreement stipulates that the adversely affected properties will be mitigated through the completion of an Intensive-Level Survey. The Minimize 4(f) Impacts and West Alternatives are similar in terms of their ability to mitigate the impacts to historic properties.



The Intensive-Level Survey includes the following elements:

- Photographs that show such attributes as the interior, exterior, and streetscape. This will include an adequate number of professional-quality, black-and-white photographs.
- Research material including a copy and a negative of the legal historic tax card (if available).
- All materials will be placed on file with the Division of State History, Historic Preservation Office.

5.8 Coordination

The S.R. 108 action alternatives under consideration have been coordinated with all Section 4(f) property owners in the study area and the relevant agencies. The property owners and agencies are on the project mailing list and have received invitations to attend and comment at the project-related public meetings that have been held to date.

Agencies consulted include the SHPO and Department of Interior. In their January 8, 2008, comments on the Draft EIS, the Department of Interior concurred that there is no feasible or prudent alternative to the Preferred Alternative and that all measures have been taken to minimize harm to 4(f) resources. The SHPO concurred with the historic property and *de minimis* findings on April 8, 2007. UDOT has developed the Section 4(f) evaluation in coordination with FHWA.

5.9 Final Section 4(f) Statement

The Preferred Alternative would have the least amount of 4(f) uses, the lowest overall cost, and the fewest residential and business relocations. Impacts to other community and natural resources would be similar between the two action alternatives.

Based on the above 4(f) evaluation, the Minimize 4(f) Impacts Alternative would result in a 4(f) use of 54 architectural properties that are eligible for the NRHP. The Utah SHPO concurs that the Minimize 4(f) Impacts Alternative would have “no adverse effect” on 40 of these 54 historic properties. The 4(f) impacts to these 40 properties are therefore considered *de minimis* as described in Section 5.3.1, *De Minimis* Determination. The Utah SHPO has been notified of this finding.

The additional 14 architectural properties that are eligible for the NRHP would be adversely affected by the Minimize 4(f) Impacts Alternative and therefore have a 4(f) use under the Preferred Alternative. Based on the above considerations, there is no feasible or prudent alternative to the use of the land from the properties in Exhibit 5.9-1.

Exhibit 5.9-1: Section 4(f) Properties for Which There Is No Feasible and Prudent Alternative to Use of the Land

4(f) Architectural Properties	
1663 South 2000 West	796 North 2000 West
1318 North 2000 West	1197 North 2000 West
1609 South 2000 West	1693 North 2000 West
850 South 2000 West	1993 North 2000 West
723 South 2000 West	2133 North 2000 West
150 South 2000 West	5720 South 3500 West
58 South 2000 West	3713 Midland Drive

The Preferred Alternative includes all possible planning to minimize harm to these Section 4(f) properties resulting from their use. Based on the above considerations, there is no feasible and prudent alternative that avoids the use of 4(f) resources, and the proposed action includes all possible planning to minimize harm resulting from such use.